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26 December 1963

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[Redacted]

Dear George,

The final report on the micro x-ray program is unacceptable and is returned herewith for revision. Also, enclosed is your document receipt; the original copy of this report has been retained for purposes of record and the enclosed receipt has been altered to so indicate.

The Appendix of this letter contains a list of specific items which require attention. These revisions constitute the minimum steps necessary to put this report into acceptable form and are not proposed as limiting requirements by any means.

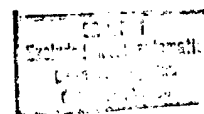
In the interest of avoiding a repeat performance, the following general comments are offered regarding the unacceptability of the report:

1. The report is loosely and carelessly written in a manner which suggests that [ ] had little interest or pride in the final result. This impression is further reinforced by the typing and assembly of the report.

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2. The ratio of editorial comment to substantive information is excessive, particularly in the Summary and Conclusions portion of the report. This tendency persists throughout the body of the report without adding substantially to anything except bulk density. I had not expected a repetition of this after our discussions on the laser report which suffered in a similar manner.

3. Finally, the report contains some misstatements of fact. For example, on page two it is stated, "As of the termination of the program, we have not entered any data on these cards. We never received any instructions from the sponsor as to the coding desired." Actually, you were instructed not to code the cards. This was done after your proposal had been received, and rejected, by prospective users of the equipment.

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I trust that action will be taken to correct these deficiencies. Please contact me if there are any questions as to what is required. As a guide to the type of report which is considered acceptable, please refer to your December 9, 1963 report on Contract 648, Task Order 22 for guidance.

This office has no objection to publication of certain aspects of the micro x-ray work. However, exact copies of proposed papers must be submitted to this organization for technical and security approval prior to being submitted to the publisher.

Very truly yours,



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Attachment

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APPENDIX

<u>Item No.</u>	<u>Page No.</u>	
1	1	Statement of objectives is incomplete. See proposal #5-1744, Objectives 1-A, 1-B, 1-C.
2	1	Omit statement of objective for final reporting period. This is a final report covering the whole program period.
3	1	<u>Summary and Conclusions</u> a. Relate this section to Item (1) above. b. What is the difference, if any, between a "catalog quality diffraction pattern" and a usable pattern? What factors determine the number of trials required to obtain useful data? Have any guide lines been delineated in this work which will benefit users of the device? c. What is the range of time factors involved in obtaining data? d. See page 21 for a conclusion regarding effect of particle size and grinding on pattern obtained. Doesn't this type of information belong in this section? e. Was an attempt made to identify compounds adhering (directly) to the substrate material (page 3 of Proposal #5-1744)? If so, what

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3	1	e. techniques were used? What degree of success was achieved? If success was limited, what factors were responsible?
3	1	f. What physical factors affect quality of picture, i.e. grinding, packing density, etc? What quantitative guides have been developed here, if any?
		g. Omit references to search systems here; this reference properly belongs in Section IV-1. The purchase of a commercial indexing system is hardly a development worthy of note as a research accomplishment.
		h. In connection with the point that a check was achieved between SwRI and NBS data using germanium dioxide, specify sample size(s) used in measurement.
		<u>IV. Experimental Procedures</u>
4	3	The word "where" may have been omitted from the last sentence.
5	4	Sloppy typing, e.g., "copper" has obvious strike-over.
	4	Reference needs to be set aside from text by a line, etc.
6	5	Reference needs to be set aside from text.
7	6	Note incomplete sentence, "A fluorescent screen backed by lead glass (No. 6 of Figure 4) which plugs into a socket in the camera body".

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<u>Item No.</u>	<u>Page No.</u>	
8	6	Erroneous designation, by two different numbers, of lead glass in Figure 4.
9	7	Explain technique used to pack samples in washers. If samples were ground, what precautions were observed, if any, to avoid contamination of sample by grinding apparatus? What types and sizes of grinding implements were used? What special techniques, if any, were developed to make the job easier?
10	8	With reference to use of ethyl cellulose membranes, how were they made or where were they purchased? What brand and grade or specification of ethyl cellulose was used?
11	11	"Representative diffraction patterns are shown by Figures 10-16." Specify sample weight and exposure times for each picture.
12	13	Sloppy typing - first sentence of page.
13	18	Mis-statement of fact concerning instructions for Termatrex coordinates. [ ] was instructed <u>not</u> to drill cards or proceed farther with the scheme proposed in Progress Report No. 5, dated June 11, 1963. This decision was based on the fact that the potential users of the equipment, after receiving the [ ] proposal, expressed dissatisfaction with it

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13	18	and expressed a desire to develop their own system when the equipment became available. Rather than disclose the reasons for the decision, [ ] was instructed not to drill the cards.
14	18	Table 3 is a completely useless table unless it is related to the diffraction patterns presented in Figures 10-14.
15	19	State weight of germanium dioxide sample used for measurement.
16	21	Error in Table IV reference.
17	21	Omit the history of why only data from the second set of data are tabulated in Table 5.
18	21	If the search of the Termatrex file added nothing to the report, then omit it.
19	22	Omit the sermonizing concerning the shortcomings of the Termatrex system. This system was purchased, with SwRI's concurrence, after [ ] made a convincing case regarding the inadequacies of the ASTM X-ray powder file.

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Among questions not answered by the report are the following:

a. What safety precautions, if any, are required by the operator in the use of the equipment, i.e., shielding, etc.?

b. Are the collimators reusable? If so, how are they cleaned? Is contamination a problem in re-use?

Most of these points are noted in Copy 2 of the subject report, which is returned herewith.

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